Remarks

This Amendment is responsive to the **April 19, 2006** Office Action. Reexamination and reconsideration of **claims 1- 21 and 23 - 37** is respectfully requested.

Summary of The Office Action

Claims 25-33 were rejected under 35 U.S.C. §101 as being directed to non-statutory subject matter.

Claims 1-2, 4-9, 13, 17-18, 20, 22-26, 29, 31, 33-35, and 37 were rejected under 35 U.S.C. §102(e) as being anticipated by Holmes (U.S. Pat. No. 6,490,635).

Claims 10, 14, 19, 21 and 28 were rejected under 35 U.S.C. §103(a) as being unpatentable over Holmes in view of Chamberlin et al. (PGPUB: US 2004/0223722).

Claims 11-12 were rejected under 35 U.S.C. §103(a) as being unpatentable over Holmes.

Claims 3-4, 15-16, 27, 30 and 32 were rejected under 35 U.S.C. §103(a) as being unpatentable over Holmes in view of Ogawara (JP: 09321962).

Claim 36 was rejected under 35 USC 103(a) as being unpatentable over Holmes in view of Li et al. (USPN: 6,256,705).

The Present Amendment

Claims 1, 13 and 25 have been amended to recite predefined first and second regions. No new matter has been introduced by these amendment. Support can be found in the specification, for example, at Figure. 1, paragraph [0033] and paragraph [0035].

Additionally, claim 20 has been amended to recite "where the priority level of an I/O request is determined based on a predefined location of data within the storage device associated with the I/O request." No new matter has been introduced by this amendment. Support can be found, for example, at Figure 7 and paragraph [0045].

Claim 22 has been cancelled and claims 23 and 24 have been amended to modify their dependencies.

Finally, claim 35 has been amended to recite allocation logic configured to define a plurality of regions within the storage device "based on information received from a user". No new matter has been introduced by this amendment. Support can be found, for example, at paragraph [0027].

The Claims Are Directed to Statutory Subject Matter

Claims 25-33 were rejected under 35 U.S.C. §101 as being directed to non-statutory subject matter. Claim 25 recites "[a] computer-readable medium storing processor executable instructions operable to perform a method". The Office Action notes that "[t]he specification indicates that the computer readable medium may be implemented as a transmission media, which can take the form of electromagnetic radiation, carrier wave/pulse and signals used to propagate instructions or other software over a network." (Office Action, page 2). The Office Action states "[t]hese forms of media are not statutory subject matter." (Office Action, page 2).

The Examiner is requested to provide authority for this rejection. Contrary to the Office Action assertion, the 1996 PTO Examination Guidelines For Computer-Related Inventions (1996 Guidelines) as controlled by Federal Circuit case law reveal that carrier waves are statutory subject matter. Therefore this rejection is baseless and should be withdrawn.

Furthermore, the rejection is conclusory. No substantive law and no analysis of claim limitations were provided to establish a proper §101 rejection. The rejection thus cannot stand.

Applicant assumes that the basis for the rejection may stem from the Interim Guidelines for Subject Matter Eligibility dated 22 November 2005. If this is the case, Applicant notes that the U.S. Patent Office has stated that the Interim Guidelines are not law. The U.S. Patent and Trademark Federal Register/Vol. 70, No. 243/Dec. 20, 2005/Notices under the "Request for Comments on the Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" in the third column, lines 57-66 state:

> "The Patent Subject Matter Eligibility Interim Guidelines do not constitute substantive rule making and hence do not have the force and effect of law....Rejections will be based upon the substantive law..." [Emphasis Added]

As such, simply citing to the Interim Guidelines does not satisfy the obligations and requirements for establishing a proper §101 rejection. There must be some articulated reasoning with some rational underpinning to support the legal conclusion. No substantive law has been cited and no rationale has been articulated to support the rejection. The rejection thus cannot stand and should be withdrawn.

Furthermore, as a direct result of *Lowry* and *Beauregard*, the PTO provided the 1996 Guidelines to examiners and practitioners alike. The 1996 Guidelines (as recited in MPEP §2106) provide guidance for how to examine computer-readable medium claims. For example, MPEP §2106 distinguishes proper 35 U.S.C. §101 rejections (e.g., to claims directed to forms of energy) from improper 35 U.S.C. §101 rejections (e.g., to claims to signals functioning as computer-readable medium).

MPEP §2106 (IV)(B)(1)(a) reads:

> A claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and **is thus statutory**. (emphasis added)

In this application, the rejected claims concern a computer-readable medium comprising processor executable instructions (e.g. a program), and is thus statutory.

MPEP §2106 (IV)(B)(1)(c) reads:

> Claims that recite nothing but the physical characteristics of a form of energy, such as a frequency, voltage, or the strength of a magnetic field, define energy or magnetism, *per se*, and as such are non-statutory natural phenomena. *O'Reilly v. Morse,* 56 U.S. (15 How.) 62, 112-14 (1853).

In this application, the rejected claims recite more than just the physical characteristic of energy. They recite processor executable instructions that cause a processor to act, function, and/or operate in a specific manner. It has been judicially recognized that such instructions transform a device from a general purpose machine to a special purpose machine, which has long been recognized as statutory subject matter.

MPEP §2106 (IV)(B)(1)(c) also reads:

> A signal claim directed to a practical application of electromagnetic energy **is statutory regardless of its transitory nature**. See *O'Reilly*, 56 U.S. at 114-19; *In re Breslow,* 616 F.2d 516, 519-21, 205 USPQ 221, 225-26 (CCPA 1980). (emphasis added).

In this application, the rejected claims concern processor executable instructions that cause a processor to act, function, and/or operate in a specific manner. This is a practical application regardless of the form of the instructions. Thus, following MPEP §2106(IV)(B)(1), the claims are statutory and this rejection should be withdrawn.

The 1996 Guidelines were supplemented with the 1996 PTO Training Materials Related To Examining Computer-Related Inventions (1996 Training Materials). The 1996 Training Materials discuss, with approval, the following claim in US patent 5,568,202 (Koo).

> An electronic reference signal in a system for minimizing the effects of ghosts occurring during the transmission and reception of a television signal over a communications path, **wherein said reference signal is embodied in a processor readable memory**, is non-cyclic, has a substantially flat frequency response within the bandwidth of said communications path and has a plurality of substantially uniform amplitude peaks over a time interval, and wherein a replica of said reference signal is transmitted as part of said television signal and is utilized by a decoder to derive coefficients which are used with at least one filter to remove said ghosts.

Thus, since at least 1996, carrier wave claims have been regarded favorably by the PTO and have been deemed to be statutory subject matter. The PTO is simply following the law as established by the Federal Circuit in *Beauregard* and *Lowry*. The Examiner is invited to follow Federal Circuit case law as directed by the MPEP and thus to withdraw this rejection.

The Claims Patentably Distinguish Over the References

Independent Claim 1

Claim 1 recites an access controller configured to control access requests to a storage device by metering access to data within a first predefined region within the storage device and by allowing unmetered access to data within a second predefined region within the storage device. Holmes fails to teach or suggest these features and thus claim 1 patentably distinguishes over the references of record.

Holmes is directed to a disk drive controller that provides for the handling of queued command from a host device and in particular to a method for detecting a command conflict that would restrict reordering of queued commands. (Holmes, column 1, lines 7-11). Holmes provides:

> "[c]ommand reordering is a technique used with command queuing to mitigate the effects of seek time and rotational latency, the slowest aspects of disk drive transfers. If the command order can be changed so that commands accessing data in areas closer to the head are given greater priority, then the performance of the drive improves. For example, if a first command received from the host requests data from an inner track, a second command requests data from an outer track and a third command requests data, also from an inner track, the head has to travel from the inner tracks to the outer tracks, and then back to the inner tracks to execute the commands in chronological order. Command reordering would efficiently execute the first and third commands sequentially." (Holmes, column 1, lines 49-62, emphasis added).

Thus, with command reordering as described in Holmes, an access that will cause the least amount of motion of the head will be given priority and accesses will be re-ordered to reflect this priority. Control is not exercised based on whether an access is associated with a predefined region like a "hot" region or a "cold" region.

Since claim 1 recites features not disclosed or suggested by the reference, claim 1 patentably distinguishes over the references of record and is now in condition for allowance. Additionally, dependent claims 2-12 also patentably distinguish over the references and are in condition for allowance.

Independent Claim 13

Claim 13 is directed to a method and recites receiving access requests to a storage device; and increasing response time for access requests to a first predefined region within the storage device by metering access requests to a second predefined region within the storage device. Holmes fails to teach or suggest these features and thus claim 13 patentably distinguishes over the references of record.

As discussed previously, Holmes relates to conflict detection for queued command handling which can arise in the context of command reordering based on the current location of a disk drive head. Holmes does not teach or suggest increasing response time for access requests to a first predefined by metering access requests to a second predefined region within a storage device. Rather, Holmes constantly changes the reordering priority since the location of the drive head constantly changes.

Since claim 13 recites features not disclosed or suggested by the reference, claim 13 patentably distinguishes over the references of record and is now in condition for allowance. Additionally, dependent claims 13-19 also patentably distinguish over the references and are in condition for allowance.

Independent Claim 20

Claim 20 recites allowing I/O requests having a first priority level to be processed; and limiting I/O requests having a second priority level, where the priority level of an I/O request is determined based on a predefined location of data within the storage device associated with the I/O request. Holmes fails to teach or suggest these features and thus claim 20 patentably distinguishes over the references of record.

As noted above, the command reordering disclosed by Holmes is based on a current location of a disk drive head. Holmes does not teach or suggest limiting I/O requests where priority is based on a predefined location of data within a storage device.

Since claim 20 recites features not disclosed or suggested by the reference, claim 20 patentably distinguishes over the references of record and is now in condition for allowance. Additionally, dependent claims 21 and 22-24 also patentably distinguish over the references and are in condition for allowance.

Independent Claim 25

Claim 25 recites metering access requests to a first predefined region within the storage device to maintain response time for access requests to a second predefined region within the storage device. Holmes fails to teach or suggest these features and thus claim 25 patentably distinguishes over the references of record.

The command reordering disclosed by Holmes is based on a current location of a disk drive head. Of course, the location of the drive head constantly moves. Holmes does not teach or suggest metering access requests to a first predefined region within the storage device to maintain response time for access requests to a second predefined region within the storage device.

Since claim 25 recites features not disclosed or suggested by the reference, claim 25 patentably distinguishes over the references of record and is now in condition for allowance. Additionally, dependent claims 26-34 also patentably distinguish over the references and are in condition for allowance.

Independent Claim 35

Claim 35 recites allocation logic configured to define a plurality of regions within the storage device based on information received from a user; threshold logic configured to assign a metering threshold to one or more selected regions of the plurality of regions; and an access controller configured to process access requests to the storage device, the access controller including logic configured to meter access requests to a selected region of the plurality of regions once a metering threshold for the selected region is met.

Holmes fails to teach or suggest these features and thus claim 35 patentably distinguishes over the references of record.

The Office Action provides "Holmes discloses allocation logic configured to define a plurality of regions within the storage device (inherent; disk drives are allocated and defined as logical block having corresponding logical block addresses); threshold logic configured to assign a metering threshold (threshold established by movement of the head) to one or more selected regions (overlap regions) of the plurality of regions; and an access controller including logic configured to meter (lower priority) access requests to a selected region of the plurality of regions once a metering threshold for the selected region is met (when the head is moved farthest from the selected region). (Office Action, page 5).

Holmes does not teach or suggest the definition of a plurality of regions based on information received from a user. To the contrary, the command reordering disclosed by Holmes is based on a current location of a disk drive head.

Since claim 35 recites features not disclosed or suggested by the reference, claim 35 patentably distinguishes over the references of record and is now in condition for allowance. Additionally, dependent claims 36-37 also patentably distinguish over the references and are in condition for allowance.

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Conclusion

For the reasons set forth above, **claims 1-37** patentably and unobviously distinguish over the references of record and are now in condition for allowance. An early allowance of all claims is earnestly solicited.

Respectfully submitted,

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